

According to the cartography of INEGI with a scale of 1: 250,000 (1998), the predominant characteristics in Tijuana are; marine terraces with conglomerate rocks in great extensions, located at both sides of the main stream of the Tijuana River; an alluvial bedrock over Valle del Rio, Tijuana, and detritic deposits with sandy stone, mainly in the south and east of the city. Playas de Rosarito has been established over a marine terrace with sandy stones.

2.1.7 Risks Associated with Natural Phenomena

The zone of study presents risks in the form of potential seismic activity as well as flooding and landslides, particularly in urban developed areas with very pronounced slopes and devoid of vegetation covering. In the following paragraphs these risks are described briefly.

Risks of Seismic activity

In the region there exists a series of tectonic faults, among the most important due to their proximity are La Nación and Vallecitos Faults. Figure 2-7 illustrates the principal faults in the region.

The in-depth study by Colegio de la Frontera Norte (COLEF) in 2000 evaluates the risk of seismic activity and establishes a prioritization of the risks based on the theoretic susceptibility to seismic phenomena of the terrain and the probability that these phenomena would occur. The zoning of the risks is summarized in Figure 2- 8.

Some of the more relevant results of the study are the fact that the Valley of the Tijuana River, which is one of the centers of commercial, financial, and services activities, has the highest risk potential in the city. On the other hand, the regions to the south and occidental are the zones with the least risk, due to the level of development that is projected in these zones over the following years. It is important that compliance with regulations for construction of residences and infrastructure of services be met in order to avoid significant disasters.

Risks during the rainy season

During heavy storms, surface runoff can exceed the capacity of the natural waterways and of the structures designed to capture the flows, resulting in flooding and transportation of materials such as garbage and sediments in areas along the rivers. Housing built in floodplains in some areas of Tijuana is at major risk of flood damage.

Storms also bring the risk of landslides in hilly areas. Lack of vegetation on some hills and mountains and housing built on hillsides, along with the existence of steeply sloping, unpaved streets, exacerbates the problem.

2.1.8 Land Use

The purpose of this section is to analyze the structure of land use and destiny in Tijuana and Playas de Rosarito. The primary sources of input were urban development maps provided by Instituto Municipal de Planeación (IMPLAN; draft of the updated Urban Development of the City of Tijuana) and the Playas de Rosarito

Urban Development and Ecology Office (Desarrollo Urbano y Ecología del Municipio de Playas de Rosarito).

Based on the information submitted, the developed area of Tijuana consists of approximately 54,363 acres (22,000 hectares) representing approximately 25 percent of area of the municipality. The territorial distribution for land use can be observed in Figure 2-9, while Figure 2-10 shows the main land uses projected for Tijuana and Playas de Rosarito for the year 2000.

The developed area of Playas de Rosarito occupies 8,402 acres (3,400 hectares), representing approximately 7 percent of the municipal territory. The residential land use represents almost 54 percent in Playas de Rosarito and 75 percent of the Tijuana urban area.

An important project is currently being developed, called the Corredor Tijuana 2000, has the goal of consolidating the infrastructure and provision of services to encourage the urban development of Tijuana, Playas de Rosarito and Tecate in areas where development is more appropriate based on land use projections. The project will concentrate the intensified economic activity among the municipalities in an area in a well-planned corridor that will extend from the eastern part of Tijuana to the southern end of the current Playas de Rosarito urban area.

Commerce and service sector

There are two important zones in the city that can be clearly defined. The first zone is the Downtown area and the River Zone with an approximate area of 618 acres (250 hectares). This area is important because it brings together the main commercial and financial activities, a historical center, international tourism and government activities. The second most important zone is distributed from the northwest to the southeast around Agua Caliente, Diaz Ordaz and Federico Benitez Boulevards on a 10-km (6-mile) main highway where commercial and financial activities are conducted to support the local and regional-national markets.

In the last years, new areas of commercial and services activity have developed toward the east and southeast of the city, such as Villa Fontana, El Florido and the third phase of the canalization from the Tijuana River, which seek to decentralize commercial and service activities in the Otay and the La Presa areas through development of small shopping malls that focus on enabling those who live in the east and southeast portions of the city to avoid long distance travel and traffic congestion.

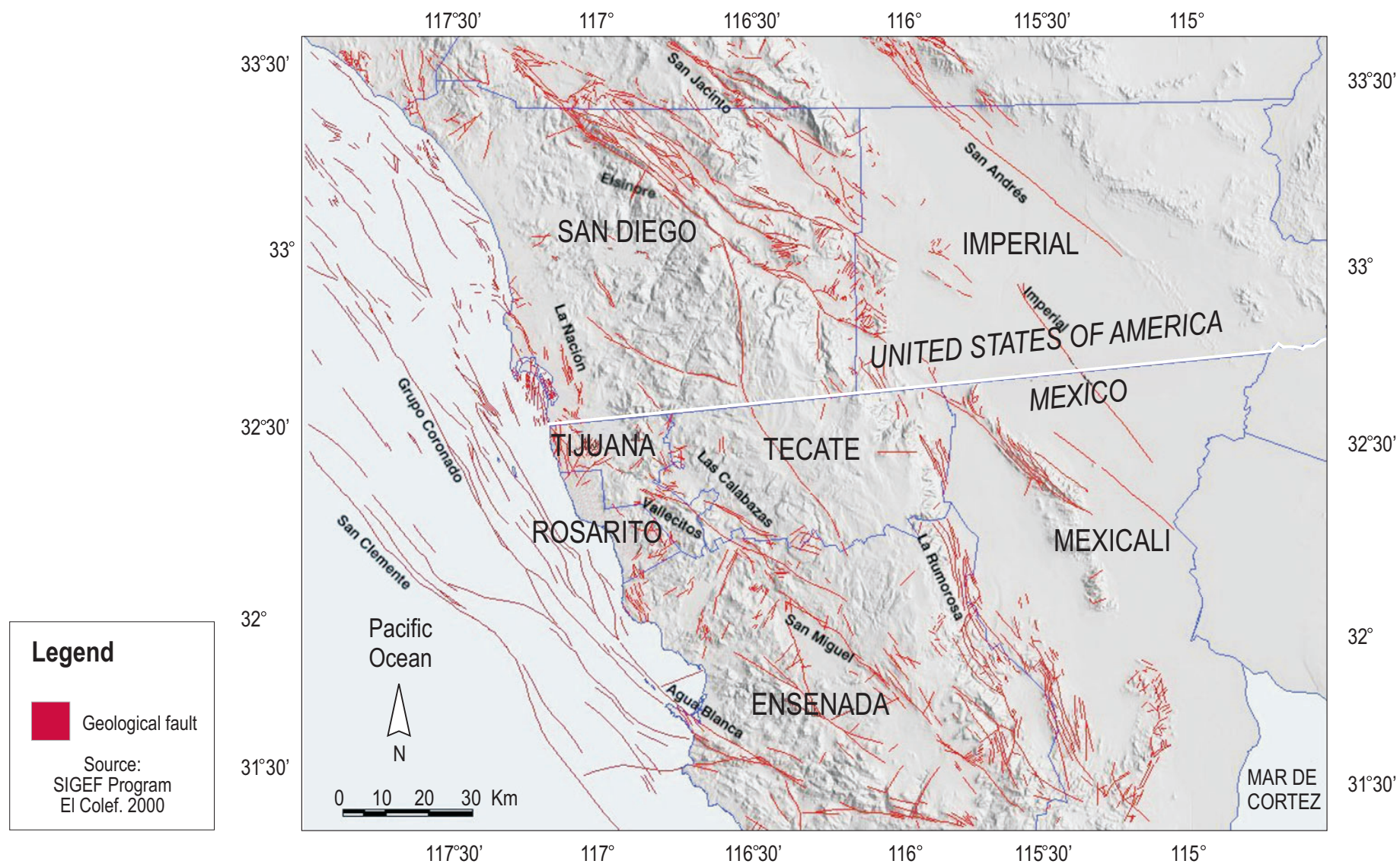


Figure 2-7
Main geological faults in the region

Types of seismic risk

Legend

- R0 Very low seismic risk
- R1 Low seismic risk
- R2 Moderate seismic risk
- R3 High seismic risk
- R4 Very high seismic risk

Source:
SIGEF Program
EI Colef. 2000

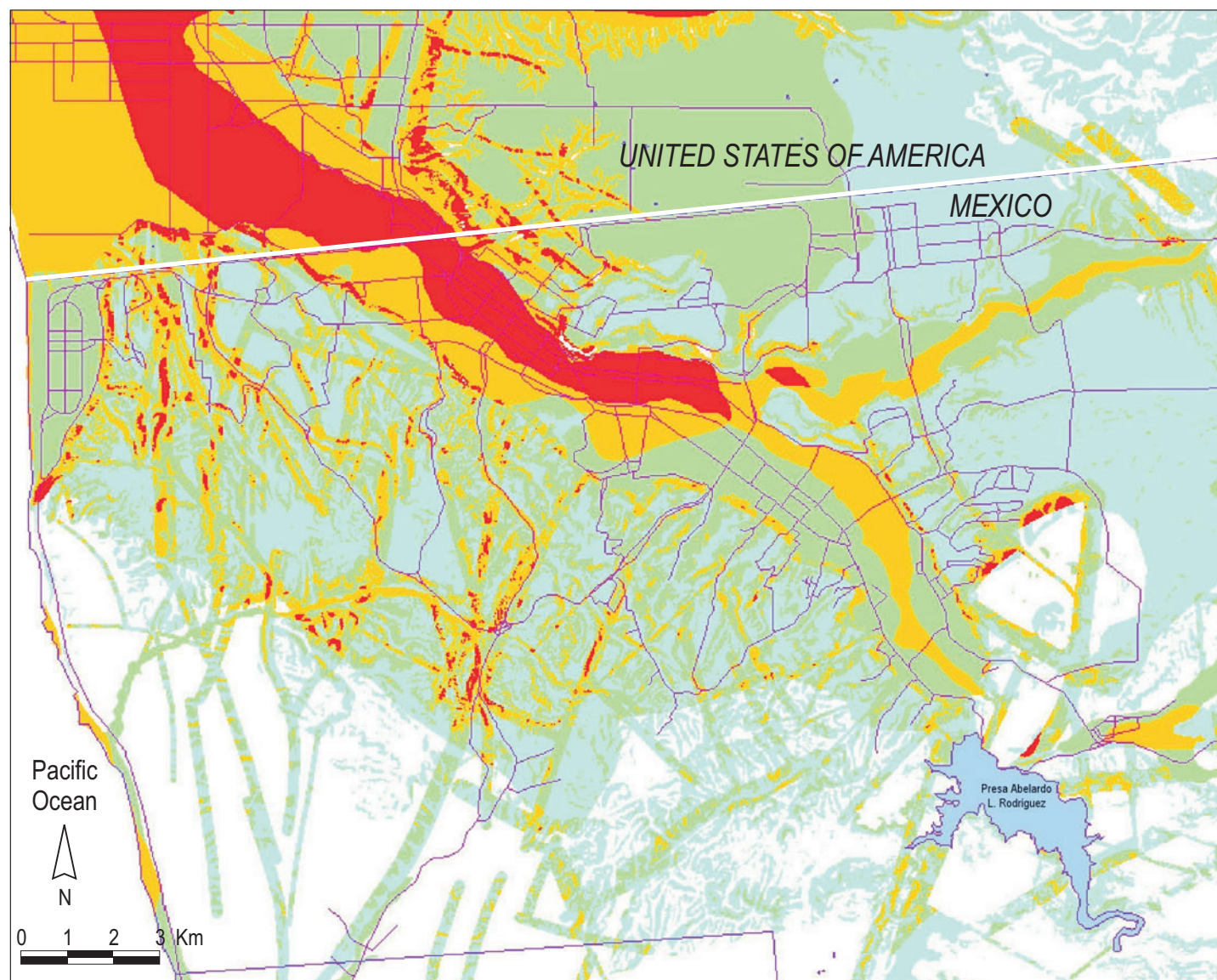


Figure 2-8
Seismic risk area

In Playas de Rosarito commercial activities are located in the southern portion of the city on Juarez Avenue, and parallel to the coast along a 3-mile (4.8-km) stretch, where tourist and commercial services are predominant. Here one can find hotels, bars, restaurants, dance clubs, arts, crafts stores, and other types of stores that typify locations that make a living from tourist activities.

Industry

The major *maquiladora* (factory) industries have opened primarily in industrial parks or centers because of the size of the industrial plants and the availability of the infrastructure and services that they require. Nevertheless, some smaller *maquiladoras* (factories) have opened in business and residential districts. Twenty-eight industrial parks, most located in the Otay, La Mesa, and La Presa Districts, are the principal centers of *maquiladora* (factory) activity.

Industry in Tijuana is distributed according to different industrial activity development phases. One primarily notices a central axis in the Zona Centro (downtown), along with *Colonia Libertad* (Liberated Neighborhood), as one of the city's first poles of industrial activity. There is also industrial expansion parallel to the Tijuana Riverbed, running south-southeast toward the Abelardo L. Rodríguez Reservoir.

In Mesa de Otay, developed more recently, a series of industrial parks has been set up beginning at the Tijuana Airport and running east toward the toll highway to Tecate. In addition, a series of industrial plants has opened southeast of the city.

The establishment of the Toyota plant in Tijuana will generate new sources of employment and will help create other smaller business activity. As far as basic necessities, the installation of this plant will generate the development of water and sanitation systems, and the delivery of electricity and telephone service.

The Toyota plant will likely change current land use, since many of its future workers will prefer to live near it. This will mean that schools as well as a basic health care clinic will be needed.

Industrial activity in Playas de Rosarito is much less compared to the activity in Tijuana. The industrial activity in Playas de Rosarito began in the 1960's when the thermoelectric plant by the Federal Electricity Commission, (Comisión Federal de Electricidad), (CFE) was inaugurated for the generation of electricity. In this same period, the activities of PEMEX (Petroleum of Mexico) began in the region, within the area of PEMEX Refinery, with storage and distribution facilities. Recently, the film industry has emerged as an important industry for the municipality with activities such as the making of films and television series. Despite this, the industrial activity is significantly less than commerce in this municipality.

Primary land uses

Legend

- Green Areas
- Commercial
- Regulated
- Body of Water
- Infrastructure
- Residential
- Industrial
- Preservation
- Special Usel

Source: IMPLAN
and Rosarito Urban
Development Department.
2002

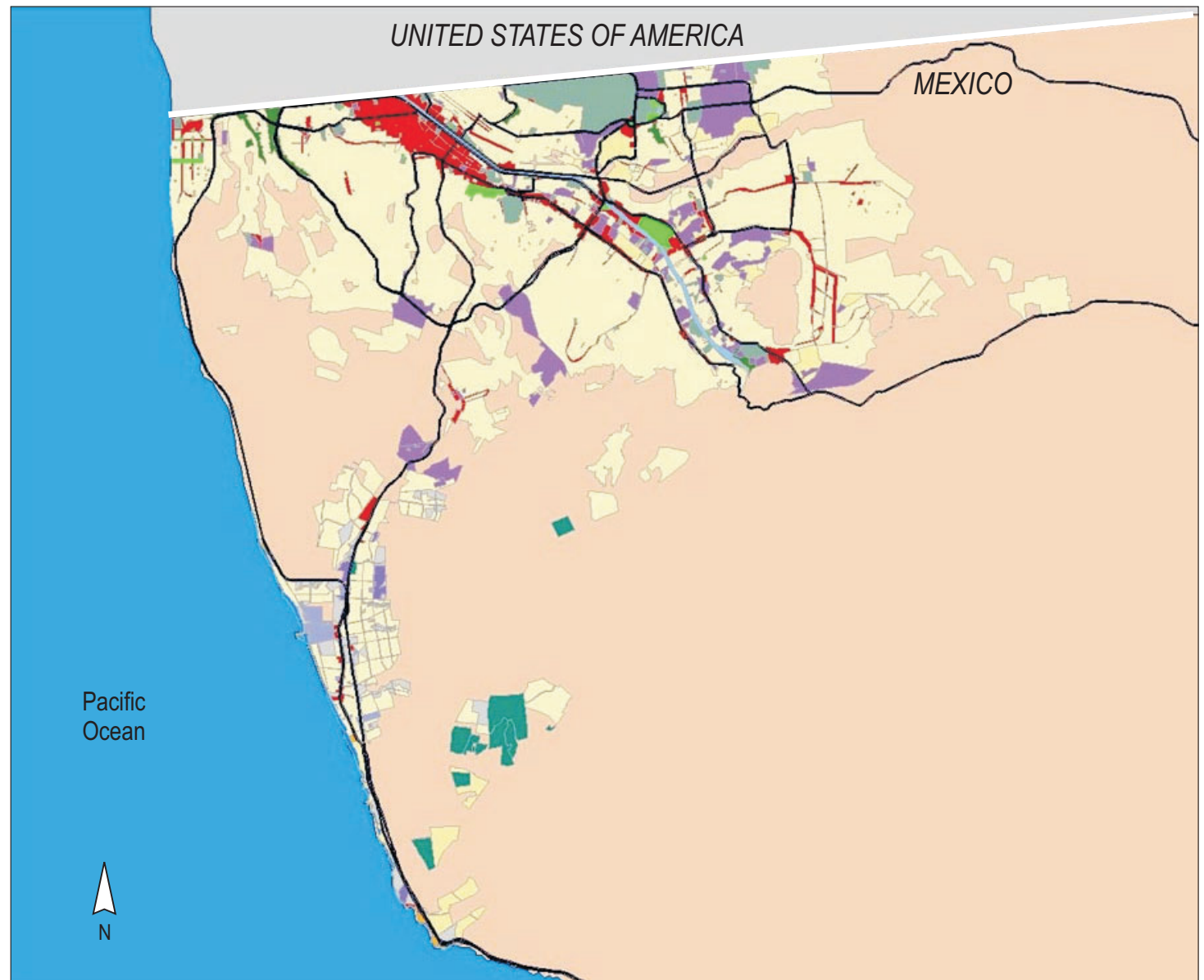


Figure 2-9
Actual urban land use